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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/700,558	11/05/2003	Youhei Toyoshima	062709-0116	1042

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EXAMINER	
LUKS, JEREMY AUSTIN	
ART UNIT	PAPER NUMBER
2837	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/700,558	TOYOSHIMA, YOUHEI	
	Examiner	Art Unit	
	Jeremy Luks	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 17,18, 20, 22, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goplen (4,011,922) in view of Bourne (2,297,046). Goplen teaches a muffler (Figure 9, #53) that is configured to discharge exhaust from a machine having one of an engine and a compressor, the muffler (53) comprising: an outer muffler shell (54); a first exhaust tube (exterior portion of #57); a tubular member (portion of tube #57 inside the muffler shell) formed inside the muffler shell (54), wherein a portion of the tubular member (interior portion of #57) is arranged on an upstream end (end near head #55) of the muffler (53) in a direction of exhaust flow, wherein a first end (inlet end) of the tubular member (inner portion of #57) is in fluid communication with the first exhaust tube (exterior portion of #57), wherein a second end of the tubular member (end near #58) is in fluid communication (via outlet ports #59) with a space (60, 67, 69) inside of the muffler shell (54), and wherein the tubular member (inner portion of #57) is configured to attenuate acoustic energy of a first frequency band, and is arranged on a front endplate (55) of the muffler shell (54); and a second exhaust tube (70) configured

to discharge exhaust in the space (60, 67, 69) inside the muffler shell (54) to the atmosphere, and extending into the space (69) inside the muffler shell (54). Goplen fails to teach a resonator set formed of the portion of the tubular member, wherein the resonator set is configured to attenuate acoustic energy of a second frequency band, which is different from the first frequency band and which modulates the first frequency band; and wherein the resonator set comprises at least two resonators; and wherein each of the resonators has a first end opening to an inner face of a tubular member and a closed second end, and a distance between the closed end of a first of the two resonators and the tubular member differs from a distance between the closed end of the second of the two resonators and the tubular member. Bourne teaches a resonator set (Figure 9, #31, 32) formed of the portion of a tubular member (30) and when used in combination with Goplen is situation on a front end plate of the muffler; wherein the resonator set is configured to attenuate acoustic energy of a second frequency band when used in combination, which is different from the first frequency band and which modulates the first frequency band; wherein the resonator set comprises at least two resonators (Figure 9, #31, 32); and wherein each of the resonators has a first end opening (33, 34) to an inner face of a tubular member (30) and a closed second end, and a distance between the closed end of a first (31) of the two resonators and a tubular member (30) differs from a distance between the closed end of the second (32) of the two resonators and the tubular member (30). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Goplen, with the apparatus of Bourne for use in short conduits where the production of higher harmonics by shock excitation is unlikely or unimportant.

2. Claims 19, 21 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goplen (4,011,922) in view of Bourne (2,297,046) as applied to claim 17, and further in view of Coulon (GB 2 365 066 A). Goplen and Bourne are relied upon for the reasons and disclosures set forth above. Goplen further teaches tubular member (inner portion of #57 arranged on a front endplate (55) of the muffler shell (54). Bourne further teaches wherein the resonator set (Figure 9, #31, 32) is arranged on a tubular member (30), and on a front end plate of the muffler shell when used in combination with Goplen, and comprises at least one resonator (31). Goplen and Bourne fail to teach wherein the resonator has a first end opening to an inner face of the tubular member and a closed second end, and wherein a plane defined by the closed second end is not parallel to a plane defined by the first end, and a distance between a first end of the closed end of the resonator and the tubular member differs from a distance between a second end of the closed end of the resonator and the tubular member. Coulon teaches a resonator (Figure 10, #26) having a first end opening to an inner face of a tubular member (10) and a closed second end, and wherein a plane defined by the closed second end is not parallel to a plane defined by the first end, and a distance between a first end (left side of resonator #26) of the closed end of the resonator (26) and the tubular member (10) differs from a distance between a second end right side of resonator #26) of the closed end of the resonator (26) and the tubular member (10). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Goplen as modified, with the apparatus of Coulon to accommodate the significant pressure and temperature increases from a turbo-charged engine, while maintaining an effective level of noise suppression.

3. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goplen (4,011,922) in view of Bourne (2,297,046) as applied to claim 18, and further in view of De Lank (EP 0445431). Goplen and Bourne are relied upon for the reason and disclosures set forth above. Goplen and Bourne fail to describe an absorbing material and scatter preventative part for use in a resonator. Nevertheless, De Lank discloses an absorbing material (Figure 1, #5) and scatter preventative part (2) for use in a resonator. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the muffler of Goplen as modified, with the noise absorbing material and scatter prevention part of De Lank to increase the noise absorption coefficient of the resonator set, and protect said noise absorption material from becoming dislodged, while still allowing gasses to enter the resonator set.

4. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goplen (4,011,922), Bourne (2,297,046) and Coulon (GB 2 365 066 A) as applied to Claim 19 above and further in view of De Lank (EP 0445431). Goplen, Bourne and Coulon are relied upon for the reason and disclosures set forth above. Goplen, Bourne and Coulon fail to describe an absorbing material and scatter preventative part for use in a resonator. Nevertheless, De Lank discloses an absorbing material (Figure 1, #5) and scatter preventative part (2) for use in a resonator. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the muffler of Goplen as modified, with the noise absorbing material and scatter prevention part of De Lank to increase the noise absorption coefficient of the resonator set, and protect said noise absorption material from becoming dislodged, while still allowing gasses to enter the resonator set.

5. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goplen (4,011,922), Bourne (2,297,046) and Burdisso (6,112,514) as applied to Claim 22 above and further in view of De Lank (EP 0445431). Goplen, Bourne and Burdisso are relied upon for the reason and disclosures set forth above. Goplen, Bourne and Burdisso fail to describe an absorbing material and scatter preventative part for use in a resonator. Nevertheless, De Lank discloses an absorbing material (Figure 1, #5) and scatter preventative part (2) for use in a resonator. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the muffler of Goplen as modified, with the noise absorbing material and scatter prevention part of De Lank to increase the noise absorption coefficient of the resonator set, and protect said noise absorption material from becoming dislodged, while still allowing gasses to enter the resonator set.

Response to Arguments

6. Applicant's arguments with respect to claims 17-28 have been considered but are moot in view of the new ground(s) of rejection. The Examiner considers that the obvious combination of the references cited herein teach all of the limitations as claimed by Applicant.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pertinent arts of record relating to acoustic dumpers for exhaust systems are disclosed in the PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy Luks whose telephone number is (571) 272-

2707. The examiner can normally be reached on Monday-Thursday 8:30-6:00, and alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-1988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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SUPERVISORY PATENT EXAMINER